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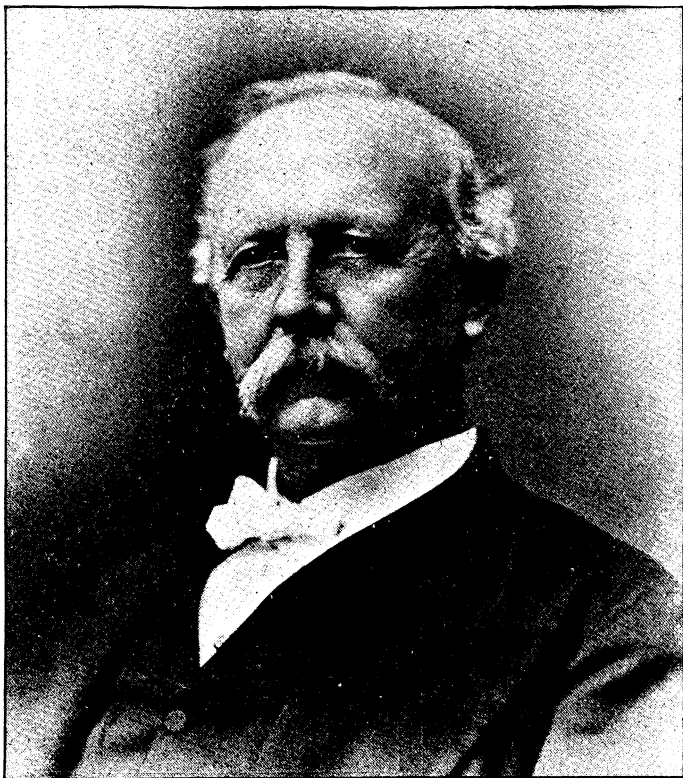
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DEAN OF THE BALTIMORE COLLEGE OF DENTAL SURGERY

ITEMS OF INTEREST.

VOL. XI.

PHILADELPHIA, JANUARY, 1887

No. 1.

Notes from the Profession.

THE FIRST DENTAL COLLEGE.

DR. A. WILLIS BAXLEY.

LONDON, Sept. 29, 1874.

WM. H. DWINELL, M. D.,

Dear Sir: You ask me to write what I said to you some time since, about the where, when and how, and on whose motion systematic instruction in dental surgery originated.

Pressing engagements at this moment allow me to say but briefly, that in the summer of 1839 in the city of Baltimore, where I was engaged in the practice of medicine and surgery, and in teaching anatomy, Dr. Chapin A. Harris, a practicing dentist in that same city, called on me and asked my co-operation in an attempt he proposed to make to lift dentistry from its condition of a merely mechanical pursuit often of a destructive rather than preservative tendencies, and give to it higher claims to rank as a legitimate branch of conservative surgery.

Some years before that time Dr. H. H. Hayden, also of Baltimore, had delivered to a few medical students of the University of Maryland some lectures on dental physiology and pathology. I was one of his class, and found the lectures very speculative and unsatisfactory. Certain it is, that those engaged in tooth pulling, filing and filling, which then seemed the sole business of the craft, took no interest in Dr. Hayden's attempt to enlighten them. Nevertheless he is entitled to credit for an effort, however unsuccessful, to give dentistry better claims to public confidence. Dr. Harris' scheme was altogether more comprehensive, and better fitted to draw to it the attention of those engaged in the practice of dentistry. I had a great advantage in being proposed and pushed by a man of deep conviction of duty, and of extraordinary enterprise, industry, and self-sacrificing character. It contemplated the obtaining a legislative grant of charter, to teach and confer the degree of Doctor of Dental Surgery at the December session of 1839-40 of the legislation of the state of Maryland. That enlightened body, through the personal solicitation of Dr. Harris and myself,

passed an act of incorporation of the Baltimore College of Dental Surgery, with the faculty herein named, viz.: H. H. Hayden, M. D., Prof. of Physiology and Pathology; A. W. Baxley, M. D., Prof. of Anatomy; C. A. Harris, M. D., Prof. of the Theory and Practice of Dentistry, and Thomas E. Bond, M. D., Prof. of Therapeutics..

It is a pleasing record for the medical profession to look back on and see that all engaged in this movement were graduates in medicine, and had drank of the streams of progressive science from her fountains. The practical inauguration of the new college presented a difficulty well known in America, where professors often out-ranked students. At length five legitimate students of dentistry were found to covet the honor of the new title D. D. S., and the first course of instruction was given in the winter of 1840-41. The didactic lectures were delivered in a small room publicly situated, but the teaching of practical anatomy demanded privacy and other prudential considerations also suggested the use for that purpose of a secluded stable loft. It was not the first time the modest place of a manger became the scene of an event leading to infinite results. And looking to the vast achievements in dental science following the stable loft beginning, the statement of the fact may encourage others in their best days of small things hereafter.

Participating in the early efforts under difficulties, giving practical shape to Dr. Harris' suggestions, I have been astonished at the marvellous results, which in one-third of a century have flown from them. An invalid tourist in foreign lands, where I have gone, I have found American dental anatomy, physiology and pathology, therapeutics, operative and mechanical appliances supplementing the ignorant notions and destructiveness of olden usages which have long clung even to European civilization, and American dentists themselves are welcome and cherished as the originators and bearers of coveted blessings. By their influence, dental associations, institutions and investigations, have had a birth abroad, and ere long, especially in Great Britain, Americans may expect to find rivals enter the list with them, in all that relates to this department of knowledge. Let me add my opinion that unless American dentists check the tendency to deterioration now apparent in collegiate education, and *raise the standard of preparatory and final qualifications as tested by thorough and impartial examinations*, England will probably soon and justly claim first rank in dental honors; she is trimming sails evidently to that end. But whatever issue may come in that direction it is certain that Doctor Chapin A. Harris, of America, originated the measures which have brought to us all a great boon. And it has often surprised me when witnessing and reflecting on its wide application to the wants of man-

kind that his countrymen, especially those who through it are coining wealth over the wide earth, should have neglected to manifest their appreciation of his merits, and their gratitude for his great services.

AMALGAM VS. CROWNS AND BRIDGE-WORK.

DR. W. G. A. BONWILL, PHILADELPHIA.

[In N. Y. Odontological Society, No. 5. Reported by *Cosmos*.]

A great temptation to use amalgam came when I had found crowning a success. The disposition with me was, when I felt gold should not be used in any tooth, to cut it off and put on a crown. I did not fully know then how to manipulate amalgam. I look with alarm at the pendulum swinging so far with those who make a specialty of crown and bridge-work and sacrifice teeth that amalgam could save.

Gentlemen have no idea how neglectful they are in not looking into the manipulation of alloys. Could the same interest be aroused in that as in other subjects, we would be making a vast stride in progress. Could you be assured that amalgam could be as easily and successfully used as porcelain crowns, I feel that the latter would be as infrequent with you as it is with me. Do not feel that because gold cannot be used no effort should be made to save the tooth with amalgam. You have no need to prepare the cavity as though gold were to be used. Shape the cavity without fear of the spheroidal tendency of amalgam; the contour is sure to stand, and the use of amalgam will enable you to save a class of teeth which you have hitherto condemned.

Failure to secure an amalgam that has the best qualities, irrespective of price, is another case of ill success. Fear to ask as high a price for an operation as is justifiable, when nothing else can save, has caused slighting. Another thing to be remembered in certain work with any metal is that the molars should be more widely separated than the bicuspid. Their surfaces are so much deeper and wider that the capillary action is very great, and one can look for decay unless the separation is in exact ratio to width. These are the principal causes of failure from amalgam as well as gold. Many more could be enumerated.

Unless the grinding surfaces of bicuspids and molars are of good texture, by all means cut down all prominences from which the opposing tooth would be likely to break off pieces, and a leak occur. Overlap all weak walls; but let all angles subject to attrition be obtuse and of a depth to insure resistance.

The use of too many amalgams in the same mouth, and often in the same tooth, will, if even slightly dissimilar, sometimes set up a galvanic action which will darken and consume the more oxidizable metals. Get a good amalgam and stick to it, and if you have to fill against an old filling, remove enough to have all the exterior of one

kind. A not infrequent cause of failure is the use of pink gutta-percha in a cavity as a lining under amalgam. I have seen the metal oxidized, and in some cases where but slight undercut had been made the edges of the amalgam were projecting. I use oxyphosphate as a capping. Large triple compound fillings should be anchored well down into the pulp chamber—when the pulp is dead. Two pins in roots set in amalgam will never give way.

Crown-work has gone too fast, and that grand intermediate between it and gold—amalgam—has not been allowed a chance in the saving of the remnants of natural crowns. I place on very few crowns of any kind, for several reasons: First, I seldom lose among my original patients so much of the crown as to justify it; secondary, the use of the mallet by power enables me to securely build on a gold crown, when parts of the wall remain, in such short time, and with less inconvenience to the patient, than the putting on of a cap or crown of gold; thirdly, the method of impacting amalgam used by me is a happy method for building up all molars in a remarkably short time.—*Cosmos.*

MEETING OF ODONTOLOGICAL SOCIETY OF PENNSYLVANIA.

One of the largest and most interesting meetings of this society was held at Association Hall, December 12th and 13th, 1888. The headquarters of the guests was at the Colonnade hotel and the clinics and exhibits of a number of manufactures were in the new Haseltine building on Chestnut street. The line of exhibits was quite attractive though the number of new inventions was not specially marked. The improved Register engine and mallet exhibited by the Welch Dental Co. were most favorably commented on by all who examined them.

Several of the manufacturers of Porcelain teeth made display of their recent productions. The exhibition of The Wilmington Dental Manufacturing Company was the object of particular attention, not so much because of the extent of exhibit, but on account of the wonderful evidences of improvement in the general character of mold texture, etc., as manifested in their display. This company, it must be admitted, have been and are making more progressive steps in the interests of prosthetic dentistry than any of their competitors.

The new sample card which they distributed to all desiring them, gives ocular demonstration of this fact.

The order of exercises at Association Hall was of exceptional interest, and all meetings were largely attended. The lantern exhibit on dental histology and pathology, details for which were arranged by Dr. Sudduth is deserving of all the praise that was given it. The closing feature on Thursday afternoon was a practical demonstration of Dr.

McLain's disks for sharpening instruments by the inventor himself, Dr. E. P. McLain, of Boston. He illustrated how economically and effectively all kinds of instruments could be resharpened in a moment's time by the use of his disks mounted on a mandrel and used on any engine.

Possibly the subject of most interest and importance to the profession generally was the presentation by Dr. J. N. Crouse, of Chicago, of the objects and aims of the Dental Protective Association, Constitution and By-Laws which were distributed. This organization was regularly incorporated under the laws of the state of Illinois, and intended for the protection of the interests of the profession from the exactions of monopolies of every sort, and against unjust prosecutions. The principal objects are set forth in their issued circular, as follows:

First: Dentists are writhing throughout the country over having to submit to a grasping monopoly, because, single-handed and alone, they cannot afford the expense of contesting its unjust claims. Numbers are being annoyed and prosecuted for the infringement of patents whose validity has never been legally established, and, there is every reason to believe, never can be, when dentists are organized for defense.

Second: The profession has not forgotten the treatment they received at the hands of the Goodyear Dental Vulcanite Company, and from the facts that the International Tooth Crown Company is largely managed by the same individuals, we can infer the treatment we may expect if we are unfortunate enough to be left in their power.

Third: If we do not defend ourselves, but allow this company to prosecute its claims, we shall be liable for damage for any banded or gold crown we have ever made or may make in the future.

DON'T FORGET: that to yield to the company, or to contest its demands alone and unaided, will cost you hundreds of dollars; that to protect yourself by joining the "Dental Protective Association" will probably cost you less than ten, and in no case more than twenty dollars.

Intense interest was manifested by all present in this "new departure" on the part of the profession, and, properly conducted, an incalculable amount of good may result.

Friday evening there was a gathering in the banquet hall, where all enjoyed the refreshments there set forth, and happy responses were given to appropriately selected toasts.

Detailed reports of all the proceedings will appear in the official organ of the society, The International Dental Journal.

Loading is the bane of the dental office. It is almost as bad as the reputation that you have small-pox there.

WHAT I KNOW OF COCAINE.

DR. L. H. HENLEY, MARSHALL, TEXAS.

There's not a blessing given to man that he cannot and occasionally will not abuse. We can get grand results from Cocaine, but we must learn to master it. Cocaine is a blessing, and it has come to stay. At first I handled it with the utmost care and suspicion. I remember how I gazed on the 5 oz. bottle 4 per cent solution, and thought it contained a host of subtle devils, and liable to turn one of them loose on us in an unsuspected moment. It first worked very nicely, and I felt more gratitude than I could express. Next (a few days later), I persuaded a lady who dreaded pain, that, with the use of this drug, "it would not hurt." She wanted the tooth out, and my word was taken as "tender." The truth is, the stuff had fermented, and was equivalent to that amount of common water. She gave me "hail Columbia!" saying, "I saw stars and Jerico," and that the sights were not sufficient atonement for such pain, and added "If I were a man I'd break the third commandment"—but she didn't—(audably.) A few days later I read of how carbolic acid should be used to prevent fermentation. In my next I tried that; now at this time it was very expensive, and taking into consideration the amount I had lost by fermentation, it was making "too much sugar for a cent." Well, carbolic acid was cheap, so I wanted to use a plenty which I did. As a proof of this my next patient's gum sloughed considerably. It was simply shocking! Now I wanted to be alone. I went back into my laboratory, and said to myself, I'll never use Cocaine again; and I'll teach my children to teach their children for ever let it alone. For more than a year I did not use it again. Finally I formed the acquaintance of a reputable surgeon who spoke in praise of Cocaine, and told me his simple method of using it, which has ever since been mine. I will try to give it clearly. I buy the salts as it is put up by Park, Davis & Co., in 5 gr. vial. Taking an instrument I stir the salts in the vial so that there will be no lumps adhering to the sides of the bottle; then by guess I empty $\frac{1}{4}$ of the contents into another small vial, and add about ten drops of water. This I take in my hypodermic syringe, and carefully deposit on each side of the tooth to be extracted well under the mucus membrane, and as near to the root as I can get it with my needle. I always prepare it for the case in hand. In this way I can extract almost any tooth absolutely without pain, so that I am sure to receive the blessings of your patient. Ladies especially take care to slip in a nice word for me to their friends.

But just here we are on the dangerous ground. If we are careless and unintelligent in its application, we will find a feeble patient, and occasionally those we least expect, becoming dreadfully nauseated, and

losing to some extent the control of their tongue; also the organs of prehension and deglutition. Others will complain of slight nausea, with abnormal pulsation, and an uncomfortable feeling in the region of the heart. Others will talk foolishly, or perhaps (if a lady) will shed tears and become very nervous. Others will complain of the loss of the use of their limbs, and will vehemently declare their inability to walk or stand or move in any way. And in fact carelessness will give us all sorts of trouble. I find no better stimulant where I suspect such a case than to give from one to two oz. of brandy just before I begin. Even then they may complain of nausea. This can be avoided by administering a small amount, say one drop of the carbolic acid and cocaine, then waiting a minute before going on. After you have produced insensibility to the touch of the point of your lancet (which I always use) you need have no fears of causing any systemic disturbances by applying the $1\frac{1}{4}$ grs. to the next tooth to be extracted; if you wish to remove several teeth at one sitting, cocaine, unlike most remedies, will not accumulate in the system. I do not now wait 5 minutes for the effects. I proceed at once telling my patient not to complain till they are hurt.

Now a word about those who may have unconsciously used the drug a little too freely. We can always tell by the patient's facial expression when we are going to have trouble. Loosen the clothing, remove the tooth immediately, let in fresh air, and take hold of your patient, asking, and forcing them to stand up and walk about. Exercise is the thing. It always has worked like a charm for me. Often they will complain of a stiffness of their knees, and will want to sit or lie down. Don't permit it, but insist on a promenade, and, like most promenades, it will do you both good. To make the effects more durable, use atropia with the cocaine solution. This will often prevent the necessity of brandy or other stimulants.

DIAGNOSIS.

DR. S. B. PALMER, SYRACUSE, IN NEW YORK DENTAL SOCIETY.

Caries of the teeth is the result of some pathological or chemical disturbance, which can be seen usually at a glance. At other times the keenest vision fails to establish the seat of the disturbance, so that we are compelled to diagnose from symptoms given by the patient. Fetid odor from concealed surfaces, nerve excitement in dentine, sometimes caused by acids or saccharin, aid in directing attention to the locality of the disturbance. Having gained sufficient space to operate, the condition of the cavity determines the materials for filling. Our diagnosis is not intended to discover the disease which

caused primary decay, but is limited to phases of symptoms which should govern the treatment to arrest decay.

From observation we became convinced that, through the agency of moisture, fillings reacted on tooth structure beneficially at times, at other times detrimentally. We also noticed that like conditions produced like results. This pointed to a law back of mere mechanical operations, which we determined to discover. This was once given in a former article. We repeat it in this connection. "*Under the same circumstances, and with the same solutions, the same effects always result from the same causes.*" Let us apply this rule to filling teeth. Every one knows that there are varied results in the use of gold, and each one of many years' experience knows their own capabilities for preserving teeth, so that little good can come from arguing from extreme standpoints. We know that gold does preserve teeth beautifully and effectually for many years. This is truth, but not the whole truth. On the other extreme it fails to arrest decay; in fact is inferior to other materials in that particular. We tabulate facts; they seem to differ. They were based on effects which we could plainly see, while they sprung from causes neither visible nor understood. We look to science to explain the causes, to direct diagnosis, and to harmonize facts.

Without this knowledge, observations in practice may teach one to diagnose, and select the proper material for filling; but it does not teach a law, establish a principle, or give satisfactory reasons why tin or gutta-percha preserves a class of teeth better than gold.

Impressed with the idea that failure in operations is mainly due to defective manipulation, each aspiring young operator is left to ascertain the extent of his skill by repeated failures of operations, done perhaps in direct violation of natural law. Hence we say failure in operation is mainly due to incompatibility of filling material with tooth bone. This applies to the reputable practitioner, and not to those who do not, or cannot, fill properly.

In filling highly sensitive teeth with gold or amalgam, any imperfection amounting to leakage or exposure of dentine at the margin of the plug leads to increased sensitiveness, and renders the removal of such plug difficult and painful; while gutta-percha under the same conditions would add nothing to the sensitiveness common to such exposures. Compatibility in a great measure is governed by the non-conductivity of the plug. A boy suffering from toothache was brought to my office. The cause was the point of a pencil that had been broken off in a crown cavity of an inferior deciduous molar. Though the pulp was not exposed, the sensitiveness could not have been greater had that been the case. If the material had consisted of a berry seed, a piece of wood, or any non-conducting material, no trouble would

have ensued. Plumbago is a good conductor. Trusting that the above conclusions coincide with your own observations, we will endeavor to account for the increased sensitiveness occasioned by conducting fillings. In a word, the cause is due to the decomposition of the fluid in contact with the plug and dentine.

A description of the various oral fluids in connection with the foreign substances which come in contact with the dental organs would be too lengthy, and not essential to establish the claims under consideration. When we speak of moisture or fluids, we mean the fluids of the mouth in general terms, of which saliva is the most prominent. At this juncture, mere opinions do not alter facts. Science most definitely settles the question, without reference to our choice, interest or practice.

In explanation of the principles involved, it gives me great pleasure to quote from the writings of one who, during a long and extensive practice, has always been an able defender of dentistry against empiricism, a strong supporter of gold, and as strong a denunciator of all base metals for fillings; nay, more, one whose professional knowledge of electro-chemistry enables him to comprehend, and whose truthfulness to science prompted him to revere the principles which we so earnestly advocate, and which we believe will ultimately obtain. I refer to Dr. George Watt, of Xenia, Ohio; and will quote from his "Chemical Essays" and a paper written for the Ohio State Dental Society, and published in the January number of the *Dental Register*, 1878.

Saliva, says Dr. Watt, has a strong affinity for oxygen, and absorbs it from the atmosphere. That it corrodes many of the metals; that it is an electrolyte, and that acidity is generally the result of its decomposition. This we consider to be a fair statement of the characteristics of saliva, which will be taken for the purposes of illustrating secondary decay. The relation of our subject to this process may be thus briefly stated: 1st. Dental caries is the result of positive chemical law. 2d. Moisture is a prerequisite agency of decay; 3d. Moisture must be decomposed to facilitate the process; 4th. Decomposition implies chemical and galvanic action, a knowledge of which is essential in diagnosis for filling teeth. All teeth are exposed to fluids. So long as the fluids do not chemically differ from tooth structure there is no decay. We say the saliva is in a normal condition. The fluids are rendered abnormal from various causes, such as constitutional derangement, introduction of acids, and by decomposition. As cavities are generally formed by local action of the latter, that only will be considered.

Decomposition by a galvanic current is called electrolysis; a sub-

stance which can be decomposed, an electrolyte; a conductor conveying a galvanic current into an electrolyte, an electrode. Now, then, can saliva be decomposed locally so as to affect a sound tooth? Dr. Watt says: "It is universally admitted that a tooth surrounded by a clasp is apt to decay, and a variety of reasons are offered to explain this tendency. * * * It is evident that it is often, if not always, promoted by galvanic action. A portion of food, a piece of animal fibre, for instance, lodges between the tooth and clasp; a perfect battery of the first kind is thus formed, the saliva being the imperfect, and the clasp and fibre the perfect conductors. The other requisite condition is also present, for the saliva acts chemically on the fibre. This being the case, the binary compounds of the saliva are electrolyzed. Water being one of them, of course its oxygen goes to the positive side, combines with the nitrogen of the fibre, and nitric acid is produced, which dissolves the enamel as fast as acid is formed. The enamel being removed, the animal portion of the tooth forms a part of the battery, and the current continues without the lodgment of a foreign body." This we regard as a correct scientific statement of decay in teeth in connection with metallic conductors.

Let us advance another step and apply this principle to a leaky metal plug. It matters not whether the moisture gains access from defective manipulation or defective tooth structure, the results are nearly the same. Quoting from the same author: "When a gold plug leaks there is apt to be galvanic action. The organic matter of the dentine is a conductor, and in this case represents the corroded or zinc side of the battery. Hydrochloric acid decay occurs in such cases when the buccal fluids are normal." Here we have, from good authority, the statement that the organic matter of the dentine is a conductor and positive element corresponding to the zinc in a battery. Here is the foundation of the electro-chemical theory. In this connection there is a principle not recognized or reached in practical diagnosis. It is the induced action, caused by the addition of a leaky metallic filling. In the absence of a filling let us suppose a cavity with exposed dentinal walls. The cavity is filled with oral fluids, portions of food, etc. Decay progresses by chemical action. The tooth is corroded as a vessel of zinc would be corroded by holding a liquid of a nature to chemically act on it. No one acquainted with chemistry will deny that the addition of copper or carbon, if placed in a vessel of this kind, would increase chemical action at the expense of the zinc. This is a law which cannot be set aside except by change of conditions, such as insulation of the conductor or exclusion of the fluids. The supposed cavity is analogous, and hardly needs an explanation. The addition of a metallic plug at once establishes electrical polarity, contact per-

mits an exchange of electricities, while chemical action continues to furnish the current. The increased action is due to the facts that the current is a potent agent of decomposition, the fluids in contact are electrolytes, acidity is the result of electrolysis, dissolution of lime results as the consequence.

DISCOLORATION OF AMALGAM.

For many years I had noticed that amalgam that turned black in the mouth appeared to be free from shrinkage. There never was in any such fillings, that bulging or protrusion around the edges of the cavity, so revolting to look at, so suggestive of the accumulation of food in such localities, and so suggestive of decay setting in around these protruding points of the filling as we see in amalgams which hold their color better. I have often, from these indications, removed such fillings, feeling satisfied that there must be decay; yet I am free to confess, that in the large majority of cases where I had removed such fillings (with the supposition that decay existed at these points) I have been mistaken; so that, despite the bulging, despite the overhanging edges, despite the revolting appearance, I found the amalgam preserving the tooth.—*T. F. Chupein*

Sympathetic Dentists.—There are, no doubt, some men who are naturally more sympathetic than others in the way in which they perform operations. It does not make it any easier for the patient for a man to say, "I am sorry it hurts," and goes right on using the same instrument which hurts. I had a little experience with two operators. Why was the one's operation more acceptable and certainly more agreeable, and why was the result the same? Simply that one had a pleasant touch, and that the people who had operations performed by him could not really tell how much it hurt, or whether it hurt or not; and therefore we are to study the manner of doing, and how we can accomplish the best thing for our patients. After it was impossible for me to endure the working of the first operator longer, another man came up and said, "I believe I can do that," and he went to get an engine, the same invention, but not the same instrument. He left the room, was gone a little while, and came back and said he was ready to commence the operation. I was surprised at the little pain I experienced. To me it seemed as if he was operating on the wrong tooth. The desired object was accomplished with very little pain. The simple difference was that one person took an instrument which would remove the particles grinding them up fine, while the other had a small instrument and operated it so that it would remove them without the hard pressure required by the other. There is a

difference in men's touch. I have heard it said that the way the face, the mouth, and the head are handled, is almost all in getting the confidence of the patient, and realize it.—DR. J. A. TAYLOR.

THE BUSINESS ASPECT OF DENTISTRY.

DR. JOHN G. HARPER, ST. LOUIS, MO.

In the Missouri State Dental Association.

Ask dentists what motive prompted them to enter the profession of dentistry, and probably nearly ninety-five out of a hundred would reply that they thought it an easy means of making money, as they had, no doubt, come to the conclusion by an acquaintance with a dentist who had a lucrative practice; many parents come to this conclusion and advise their sons, perhaps daughters, to enter the profession.

Many, after entering the profession, take a higher view of the vocation and lose sight of the business aspect of the calling. In a profession, a man's knowledge and experience are his stock in trade; this he is constantly increasing by close study and observation. As a man's knowledge and experience increases, he gains a reputation which becomes a part of his stock in trade.

To succeed, one must have a thorough education; this can be gained in our colleges and through associating with those eminent in the profession; this association can be gained by attending dental meetings, reading dental journals and books. To succeed, the dentist must be a gentleman and keep his person and surroundings neat and attractive to bring to him those for whom he prefers to practice. The educated and refined appreciate these qualities.

The practice of dentistry is painful, hence it calls for gentleness and sympathy; these should be cultivated, as they add much to the dentist's stock in trade. Regarding fees, what they should be, and how collected: the dentist with these qualities and skill feels that his time and services are worth vastly more than his slovenly, ignorant neighbor, and the community in which he locates will soon come to the same conclusion, then he will have his just reward. The average professional man would far rather perform an operation than to ask for his just dues after completing the service. Time is money with the dentist, and he should have the money for his time as soon as it has been given. Bills promptly rendered, are, as a rule, promptly paid, for that reason have your books posted daily, so that on completing a series of sittings you can promptly make out your bill, if called for, and it generally is, or you are requested to send the bill to the parent or guardian. Where a large family are almost constantly requiring your services, monthly bills should be made out and collected; rent and other accounts are paid monthly, and where is the money to come from, unless you adopt a

similar rule? Services rendered from a stranger should be paid for on completion of each sitting. Not a few patients are careless regarding keeping of appointments, and these can quickly be cured or gotten rid of by informing them that you charge for loss of time.

A class of patients, usually children, cause a great loss of time by not submitting quietly to the operation and causing loss of time by using the spittoon unnecessarily or asking questions. These can be cured by telling them that their papa will have to pay for the lost time. Dentists have the reputation of being poor business managers and wasting their money; to such no better advice can be given than that suggested by a banker to General Ben. Butler, who said to him: "Why do you not invest your money?" Butler replied that he had no money to invest. The banker showed him that he was in error by stating that he had money in the bank and he frequently had his check brought in by young men who seemed to be borrowers, and then the bank owed him a fee that had not been called for, showing that he was careless with his money and collections.

The advice was to buy real estate at auction, having to give but a little more than some one else was willing to give; a small cash payment would secure the property and the rest could be paid in easy instalments. The benefits were pointed out; prompt collections and saving would be necessary to meet these payments, hence there would be an object in view, something to make and save money for. Every professional man should make it a rule to lay aside a portion of his income for investment, and no better advice can be followed than that quoted; try it a year and report. Butler followed the advice and became wealthy.—*Archives*.

SENSITIVE DENTINE.

DR. LEVITT E. CUSTER, DAYTON, O.

[Read before the Ohio State Dental Society, Cincinnati, October 16, 1888.]

In a recent number of the *Archives of Dentistry* there appeared the names of several of our leading brethren and their favorite methods and medicaments for obtunding sensitive dentine. The agents used by them would complete a list commencing with mechanical means, followed by dehydrants, coagulators, sedatives, local anesthetics and closing with a long roll of patent medicines. Alcohol headed the list of dehydrants, while carbolic acid was the proud exponent of coagulation; at one extreme would be found hot air and at the other rigolene; on one hand would be found sharp burs and a Bonwill engine, and on the other "Oliver's Pain Obtunder" and Christian Science, equal parts. Every operator's method was the best, and he was always successful; but recently the attention of the profession has been called to a new

method of obtunding sensitive dentine. Dr. B. A. R. Ottolengui, a young practitioner, baffled in his attempts to satisfactorily obtund sensitive dentine by ordinary methods, has according to his own statements followed a course of logical reasoning to a triumphant end. Out of over one hundred operations he records no failure, and Atkinson says it is our own fault if we have not tried a method of such statistics.

The author of the method uses the term anesthetize in preference to the old term obtund, on account of the complete freedom from pain brought about; and since he claims success in every case, let us examine the theory and the action of the different agents employed.

The object is first to withdraw the water from the dentinal canals leaving a beaded fibril which will not completely fill the tubule, then anesthetize the fibril. For the former purpose he uses hot air, and for the latter, sulphuric ether. He proceeds in the following manner which I give in his own words: "Isolate the tooth and one or two others on each side of it, with rubber dam. After using bibulous paper, apply dry heat, not too hot, with the chip blower. These blasts should be continued till the whole tooth becomes whitened, which is sufficient evidence of dehydration. Having done this, the next step is to anesthetize the fibre. To do this use the purest ether thrown on with a continuous spray apparatus." This is continued till the patient is quiescent.

In this method we see a combination of two heretofore well known principles—complete desiccation followed by reduction of temperature.

The histological structure of dentine being a tube enclosing a beaded thread of nerve tissue, if we may call it nerve tissue, and the interbeaded spaces filled with a fluid which we suppose to be water, we see the latter to be essential to perfect sensitiveness of dentine in a two-fold manner; but which surrounds and fills the interbeaded spaces of the dentinal fibril, and that which is a constituent of the fibril itself. The water surrounding the fibril is essential in preserving an equilibrium of pressure, and acts in the same manner in the endolymph of the labyrinth of the ear. One theory of the sensitiveness of dentine is that its tubes contain only a fluid which alone transmits pressure and sensation to the pulp; but a better theory is that, containing this beaded fibril the fluid is not a continuous column and in that manner being enclosed in unyielding walls pressed on the fibril itself—not the pulp. So if this is true you will readily comprehend the external relation of the water to the fibril, which if withdrawn will reduce sensitiveness.

In regard to the relation of water as a constituent of nerve tissue or the dentinal fibril: as one of the conditions for the perfect per-

formance of nerve function there must be moisture, hence the effect of dehydration and hence its application and reputation as an obtundent for sensitive dentine. By the extraction of water from the tubuli and a portion from the fibril itself by chloride of zinc, alcohol, hot air, or by whatever means employed, the above condition is stricken out, and sensation cannot be conveyed. The reader never had success in drawing out the water till experimenting according to the first step of the Ottolengui method, when he found that he had so thoroughly desiccated the dentine and its delicate contents, and it was so nearly devoid of sensibility that the operation was often painlessly completed without applying the ether spray. Complete desiccation by whatever means, to my mind is the most powerful factor in obtunding sensitive dentine, and when used in conjunction with ether spray, is the more effective of the two. I have had little success at any time with those agents which coagulate albumen.

The second step of the process is simply anesthesia of the dentinal fibril which is produced by reducing the temperature by means of the ether spray. Here is a new application of an old method of local anesthesia—the use of the ether spray for sensitive dentine. As not many years ago when the extraction of teeth was of more common occurrence, ether was sprayed on the soft tissues surrounding the offending member and the operation painlessly performed, so to-day this same agent has been revived and is employed in lessening the pain incident to preparing cavities, filling and saving teeth. As a condition also for the perfect performance of nerve function, every animal organization seems to demand a certain temperature, therefore if that temperature be lowered, there will be a reduction of sensibility in a proportion not unlike the number of degrees. The first sensation is felt and is painful according to the degrees from the normal temperature, if the agent be continued, the nerve tissue itself becomes reduced in temperature and its conveying power is lessened in proportion to its departure from normality. Hence the application of the ether spray as a local anesthetic. On cutaneous tissue the numbing power is aided by withdrawal of blood and nutrition from the parts, but when applied to the dentinal fibril it is dependent entirely on the refrigerant qualities.

The first and unfailing query arises is as to the effect of such extremes on the pulp. In drying the dentine it is not understood that the tooth is to be heated at all. Dr. Ottolengui says the blasts may be so regulated that the whole tooth will not become hot and at the same time the moisture will have been vaporized. My own experience is that, as dentine is a poor conductor, by lengthening the intervals and applying sharp, quick, hot blasts, thorough desiccation may b-

accomplished without the heat reaching the pulp. Therefore it is not necessary that there be pulp injury from the desiccating process.

The only part admitting of doubt is the reduction of temperature. Now it is not intended that this process be continued till icicles hang from the tooth, but simply to that point where there is a cessation of pain, which fortunately is many degrees from the freezing point. The pulp is not frozen at all; it, and its nerve ending have simply been reduced in temperature till, as with the application of heat they cannot receive or transmit pain to the censorium. Dr. Ottolengui thinks the fibrils alone are anesthetized, but I am of the opinion, from the very limited duration of anesthesia, that the pulp also largely shares the numbing influence. I find as soon as warmth returns by ingress of warm blood and by conduction, sensation is also restored, proving that actual freezing had not taken place, and hence no injury of pulp tissue. Doubtless if this operation were often repeated a chronic lesion of the pulp would set in which would lead to its destruction; but for a single or a second operation I can see no objection. The author says he has seen no outward ill result so far. At this juncture Dr. R. L. Cochran, who has secretly used the ether spray for sensitive dentine for a long time, says: "In twenty-three years I have never seen a dead pulp or any *ill effects*, except sometimes sore mouths, from the ether spray." The latter we would understand to have been due to the ether coming in contact with the mucous membrane, which may be attributed to carelessness rather than necessity. In my own limited experience I have seen no bad effects.

The application of cold as an anesthetic to an organ containing as it does nerve endings, whose mission is to cry out against such extremes, may be regarded as heroic treatment; but heroism is what cuts through and burs out Atkinson's diseased apices of roots; heroism is what surgically treats live pulps; yes, heroism is what implants teeth. Often in our practice it is necessary to become quite severe that thoroughness and success may result, Ottolengui found the application of the ether spray to be painful in about forty per cent of cases, but in my hands it has been variably painful in all, but of such a character that the patient would always prefer it to withstanding the pain of cutting without its use. The pain is most severe at the beginning but it gradually lessens till at the end of from one to one and one-half minutes it has entirely subsides.

As to the effectiveness of this method of obtunding sensitive dentine, I would say while it is not the ideal method, after having tried nearly every one known, it is in my hands the only one that will produce complete anesthesia of dentine. This last stage of completeness may possibly be due to slight general anesthesia by inhalation of the

vapor; at any rate it is effective; but whether or not by blundering manipulation, I have not been able to carry the anesthetic stage long enough for completing a lengthy operation.

The Ottolengui method of anesthetizing sensitive dentine by virtue of at least the one moment of complete anesthesia which it produces, is valuable, and for that one long desired virtue is to be recognized as one of the best methods for obtunding sensitive dentine and allaying the terror so commonly associated with the term dentist.—*Ohio Journal.*

LINING CAVITIES WITH OXYPHOSPHATE—FILLING ROOTS.

AN OPEN LETTER.

Dr. J. Morgan Howe.

DEAR SIR: Sometime ago I had occasion to inquire through the **ITEMS OF INTEREST** why Dr. J. Foster Flaggs, after furnishing many good reasons for lining cavities with oxyphosphate cement, stopt short of an endorsement of such practice. I went further and asserted that I had found after long experience that it was a most excellent plan where teeth were frail or very sensitive.

Now, on the subject of root filling, you show that gutta-percha shrinks too much for a satisfactory root filling, and that "zinc chloride" does make just what we want, still you stop short of recommending it or showing how it may be used, even in the smallest canals that we can fill with anything. Why two such distinguished leaders will abandon us in such a maze is past finding out, unless they will explain it themselves.

If the cements are so excellent for root filling, what objection can be offered to this plan which I have practiced almost exclusively the past fifteen years.

Take one of the finest and best steel nerve "bristles." Flatten the point so a few fibers of cotton will wind on but will also be easily dislodged at the point of the root. Charge this cotton with a cream of cement which is *not* of the sticky variety. Carry it to the extreme end of the canal which has been ascertained by measurement marked on the shank of the "bristle." I will suppose any one can soon learn how to disengage the cotton and cement from the point of the instrument and pack it nicely at the extreme limit of the canal. Only the least amount of cotton is used that will serve as a vehicle for carrying and leaving the cement at the end of the canal. Continue to make additions in the same way till a point is reached where cement alone can be carried and left. If the wise men can show a valid objection to this plan they had better speak, as I am practicing it all the time.

W. E. DRISCOLL, Manatee, Fla.

LEGAL STATUS OF DENTISTS.

DANIEL NASON, ESQ., NEW YORK.

From N. Y. Transactions.

[Continued from page 502]

How far a dentist may be held responsible for an error of judgment has not, so far as we know, been judicially determined. Following the analogy of the other learned professions the general rule would seem to be that he is not answerable for an error of judgment in cases of reasonable doubt and uncertainty. In a case where the law on this subject in reference to attorneys was discussed the court observes: "It has been said that it will not be sufficient for a professional man to say he acted to the best of his abilities because he should have formed a more just estimate of his own capacity before he engaged him self. This doctrine, if sound, would make an attorney responsible for every error of judgment, no matter what care or attention he exercised in forming his opinion. It would make him liable in all cases where the wisdom of legality of one or more alternatives was presented for his consideration, no matter how difficult the subject. But where a person who is appointed an attorney has the qualification necessary for the discharge of the ordinary duties of the trust imposed, we are of the opinion that the occurrence of difficulties in the exercise of it, which offer only a choice of measures, the adoption of a course from which loss ensues, cannot make the agent responsible, if the error was one into which a prudent man might have fallen. The contrary doctrine seems to suppose the possession and require the exercise of perfect wisdom, infallible beings. No man would undertake to render a ser-
to another under such conditions."* In another case it is said of physicians and surgeons: "To charge them with damages on the grounds of unskilful or negligent treatment of his patient's case it is never enough to show that he has not treated his patient in that manner, nor used these measures which in the opinion of others, even medical men, the case required; because such evidence only tends to prove error of judgment for which he is not responsible."†

Yet, like a physician, a dentist cannot interpose his judgment contrary to what has become a settled practice. It is dangerous to try a new instrument or *modus operandi* for the first time. Two surgeons once used a new instrument on the leg of a patient which had been broken, for the purpose of lengthening and strengthening it. In an action for malpractice which was afterward brought against the surgeons the court, in its opinion, made the following comment on this fact: "For anything that appears to the court, this was the first ex-

* Percy v. Millavdon, 10 Mart., 36.

† Leighton v. Sargent, 7 Foster, N. H., 475.

periment made with this new instrument; and, if it was, it was a rash action, and he who acts rashly acts ignorantly; and, though the defendants in general may be as skilful in their respective professions as any two gentlemen in England, yet the court cannot help saying that, in this particular case, they have acted ignorantly and unskilfully, contrary to the known rule and usage of surgeons."*

What will constitute such a want of skill and learning, and such negligence in the application of that skill and learning as to make a dentist answerable in damages, it is not easily to define, as there is no absolute criterion by which the question can be determined; all we can say is that it varies with circumstances. Take the case of *Simons v. Henry*,† for instance. Here the plaintiff furnished the defendant with a set of artificial teeth. The defendant refused to pay for them, on the ground that they felt odd and pained her, and was then sued by the dentist. On the trial there was conflicting evidence as to whether the teeth fitted; by one it was testified that they were a good piece of work; by another, that they were a fair, average piece of work; and by a third, that they were nothing extra. The judge instructed the jury that if the plaintiff had used all the knowledge and skill to which the art had at that time advanced, that was all that could be required of him. The Appellate Court granted a new trial on the ground that the instruction given required too much of the plaintiff. "If so much could be required of him, then every professional man would be bound to possess the highest attainments and exercise the greatest skill in his profession. Such a requirement would be unreasonable."

Now, take the case of *Keily v. Colton*.‡ The defendants undertook to extract a tooth while their patient was under the influence of laughing gas. In extracting the tooth the forceps slipped, and part of the tooth went down the plaintiff's throat, causing coughing and vomiting, which continued at intervals for about four weeks. Under the circumstances the court was of opinion that the defendants were bound to use extraordinary care. "They knew that the plaintiff, while under the influence of the anesthetic, had no control of his faculties; that they were powerless to act, and that he was unable to exercise the slightest effort to protect himself from any of the probable or possible consequences of the operation they had undertaken to perform. He was in their charge and under their control to such an extent that they were required to exercise the highest professional skill and diligence to avoid every possible danger; for the law imposes duties on

* *Slater v. Baker*, 2 Wils., 359.

† 39 Me., 155.

‡ 1 City Ct. Rep., 439.

men according to the circumstances in which they are called on to act."

These two cases are consistent with each other, and both are consistent with the general rule. "Different things," says Judge Story, "may require very different degrees of care. The care required in building a common doorway is quite different from that required in raising a marble pillar, though both may come under the description of ordinary care."*

Simon v. Henry illustrates how the standard of skill and diligence may vary with the nature of the work required to be done, while Keily v. Colton illustrates how it may vary according to the condition of the patient.

The standard of skill may vary also according to locality. In large cities and towns are always found dentists of the greatest degree of skill and learning in the line of their calling. Their pretensions are properly large, and they are to be held to a correspondingly high degree of responsibility; they contract to do more than the ordinary dentist, and they are to be paid a higher price for what they do; consequently, their contract is more difficult to fulfill. In the smaller towns and country those who practice dentistry, though often possessing a thorough theoretical knowledge of the highest elements of their profession, do not enjoy as great opportunities for daily observation and practical operations; they should not, therefore, be expected to exercise that high degree of skill and practical knowledge possessed by those having greater facilities than themselves.†

On the whole subject generally, the favorable rule has been laid down that, "the least amount of skill with which a fair proportion of the practitioners of a given locality are endowed is the criterion by which to judge of a professional man's ability or skill."‡

Ordranax states the rule thus: "Therefore, to recognize, under an enlightened administration of laws, the essential doctrine of distinctions of rank founded on superiority of mind, obtaining as well in the medical as in other professions, and to provide at the same time for the universal wants of society, it has been finally determined to consider the least amount of skill compatible with a scientific knowledge of the healing;" and we may add the dental "art as sufficient to predicate the existence of ordinary skill."§

In proof of this degree of attainment, a diploma is the best evidence; but to be valid, it must be proved that the college or society from which it emanated had corporate authority to grant degrees in

* Bailments, § 429,

† Elwell, Malpractice, 23.

‡ McClelland, Civil Malpractice, 19.

§ Jurisprudence of Medicine, 25.

dentistry at the date of giving the degree, and, if the college or society of another State, its act of incorporation must be offered as proof of its authority to grant such a degree. In proof that he actually did use due skill in the treatment of a case, a dentist may introduce evidence as to his general reputation for skilfulness; for, if he shows he possesses it, the presumption will be that he used it.

To make a dentist liable for malpractice, it is further necessary to show that his want of skill and negligence stand in immediate causal relation to the injury alleged to have been done, for he is bound to look only to the natural and probable effects of his treatment. On this point *Bogle v. Winslow** is the leading case. The plaintiff, who was employed on one of the street railways in Philadelphia, was thrown from his car, his head striking a tree-box as he fell. When picked up he was insensible, and remained in that condition for nearly two hours; then he returned to his home, and next day to his work. Nearly a year later he went to Dr. Winslow's office with the express purpose of having some teeth extracted under the influence of chloroform. The chloroform was administered, but did not operate as soon as usual, exciting rather than quieting the patient. When insensibility was obtained the operation was performed, the chloroform being administered from time to time on symptoms of returning consciousness. While Bogle was walking home soon after this he complained of dizziness and of a tendency to totter; next day thickness of speech and partial paralysis supervened. From this he was still suffering, when a jury were called on to say whether his condition was due to the want of skill and neglect of the dentist. The judge told them that if any doubts existed in their minds as to the safety of the agent employed, there was still a consideration of the highest importance which they ought not disregard. "All science," he said, "is the result of a voyage of exploration, and the science of medicine can hardly be said to have yet reached the shore. Men must be guided, therefore, by what is probably true, and are not responsible for their ignorance of the absolute truth which is not known. If a medical practitioner resorts to the acknowledged sources of information—if he sits at the feet of masters of high reputation, and does as they have taught him, he has done his duty, and should not be answerable for the evils that may result from errors in the instruction which he has received. He who acts according to the best known authority is a skilful practitioner, though that authority should lead him in some respects wrong; he will have done all that can be done, all that is given man to do, and may leave the result, without self-reproach, to a higher power. If the plaintiff was, from previous circumstances, predisposed to paralysis, it might happen that the ex-

* 5. Phila. (Pa.) Rep., 136.

to an obstruction in the circulation of the blood in a certain tissue or by an obstruction in the circulation of the blood in — — issue or organ, and was not due, as generally averred, to an excess of blood organ, and is not caused, as generally averred, by excess of blood carried to a part of the human system. You claim that “in the carried to a part. — — — — — You claim that “in the affected part there is first irritation from some cause, which contracts affected part there is first irritation from some cause, which contracts the blood vessels, so that the blood cannot freely pass through the part; the blood vessels, so that the blood cannot freely pass through the part; and that afterwards, in the inflammation produced, there is a collapse and that afterward, in the inflammation produced, there is a collapse of the walls of these vessels that not only retard the blood’s flow, but of the walls of these vessels that not only retard the blood’s flow, but causes its disorganization, that may produce disorganization of the causes its disorganization, that may produce disorganization of the part, and ultimately end in maturation.” You thus assume that the part, and ultimately end in maturation.” You thus assume — — popular and generally received theory advanced by the great majority

of our great writers, is false, and that you have a better understanding
 - - - - - that you have a better understanding
 of the matter than our greatest thinkers and students on this continent
 of the subject than our greatest thinkers and students. - - -
 and in Europe. I think your theory is false for the following good
 - - - I think your theory - false for the following -
 and sufficient reasons, among many others which could be brought
 - - - reasons. - - - - -
 forward to disprove it.

rst. And first strike the back of your hand, and the falsity of
 — — — Strike the back of your hand. — — —
 your position can be demonstrated by the simple, though convincing,
 — — — — — — — — —
 act, for it will produce incipient inflammation in the part affected by
 — — — — — — — — —
 the blow. What do you see? Without the aid of any microscope or
 — — — What do you see? — — — — —
 any other assistance, you can actually and plainly see the blood rush-
 — — — You can — — — see the blood rush-
 ing to the part of the hand struck. This is proof positive and beyond
 ing to the part. — — — — — This is proof — — —
 all controversy. What our eyes see cannot be disputed,—that the
 — — — — — — — — — that the

heat? Is it not caused by the friction produced by the rapid circulation of the blood through the swelled part, affected as above described? — — — —

Although, therefore, your thought was ingeniously presented, you see it was wrong in principle, and in explanation: for by those four incontestable proofs of its reputation we are bound to believe that inflammation is due to a rush of blood to an irritated part. If you still think it is not, I should like to see your proof, and at the same time I should like to see you disprove my position; for they are not only mine, but may be found in nearly all our authorized text books, and are taught in our colleges.

The wife of a farmer called on a village dentist and said:

"Dentist, can't you put somethin' on the gums of my tooth to loos'n it a little, so that I kin take it out myself, without hurtin' much?"

"Oh, yes, madam," said the dentist, "I am supplied with just the thing you require, so please be seated and you can judge of its great value from personal experience."

When all was ready, the dentist, who had a forcep concealed in the sleeve of his coat, applied it and went at work on the loosening process in downright earnest. It being a crowded inferior molar, considerable strength was required to accomplish his purpose—the patient all the while crying out lustily for him to stop. Finally, the tooth was loosened from its socket where the dentist left it.

"Mercy on us!" exclaimed the affrighted patient, as soon as she regained her composure, "mercy on us, dentist! how the poor critters must suffer who have their teeth took out, all at onst, for that little loos'n on it hurt me awfully!"—*The Practical Dentist*.

Total Abstainers.—At 20 they may expect to live 50 years. At 30 they may expect to live 36 years. At 40 they may expect to live 28 years. At 50 they may expect to live 21 years.

RESPONSIBILITY OF PATIENTS.

DR. W. N. MORRISON, ST. LOUIS.

A great many dentists make excellent and beautiful work, and the patients carry it away with them; having paid the fee that may be customary, and they think they have done everything; there is a little gold placed in the teeth and it has some talismanic effect on their anatomy, which will prevent destruction going on in the tooth. They imagine there is something in the material that the dentist used that arrests decay. I do not say that this is the universal opinion, but many people go out and act on that basis. Now, for one, I think we cannot place too much stress on that point. We must educate our patients and not put work in such mouths till we have tested them in some degree. If necessary, put in a temporary stopping in the tooth and see whether they are going to take good care of them. The patients that come to see us are not all well trained. They may have been brought up in good families, they may have got it from some other quarters, they do not keep their hands and nails clean, nor other parts of the person, and how can you expect them to keep their mouths clean is more than I can understand. You can imagine this at any time. Take an excavator and pass around that tooth or any tooth in the mouth, in fact, and find out if they have been faithful. Now, I think, we as dentists are responsible to a great degree for this want of cleanliness in the mouth. We know that good gold, and good filling placed there, will go to destruction if they are not thoroughly rinsed and cleansed of the old epithelial scales. Microscopic insects or vegetable growth that may be there will decay the teeth at the weaker places which are always close to the metallic substance that we placed in the tooth. These are the delicate teeth and they will break down under pressure. While these gentlemen are quibbling over this little animal, I want to emphasize my views once more. If they will dilute the secretions of the mouth with plenty of pure water, rinsing the teeth thoroughly, and brush the teeth with a bristle tooth-brush, brushing all the particles out, the acid, the germ theory, etc., will appear very much less prominent. They are not happy in this sort of an atmosphere. These surroundings are not favorable for the germ life. There is not a dentist on this floor but will verify me when I say that destruction goes on very slowly when the mouth is kept clean with a brush and good pure water. We have all seen mouths that would disgust us to look into.—*Iowa Transactions.*

Moderate Drinkers.—At 20 they may expect to live 15 years. At 30 they may expect to live 12 years. At 40 they may expect to live 10 years. At 50 they may expect to live 8 years.

CONTOUR FILLING AND CONTACT OF TEETH.

DR. W. G. A. BONWILL, PHILADELPHIA.

[In N. Y. Odontological Society.]

Because I have advocated the anticipation of decay by self cleaning surfaces, it has been supposed that I made all my proximal surfaces flat, leaving the teeth to approach each other, a greater surface for predisposition to caries resulting. For more than ten years I have scarcely placed in a flat-faced filling. Soon after going to Philadelphia I found that my practice was largely devoted to teeth once separated for filling, that had so encroached on one another as to need to be pressed into their former positions to maintain proper occlusion. When *in situ* contour fillings only could retain them. Power malleting was a fact, and we knew that contouring with gold would stand. The mania with too many of us then was *gold towers*. It was so enchanting to rear them. We builded well, but not wisely. The true philosophy of contouring was not apprehended then, nor really is it now by most operators. Failures occurred so frequently that friends were turned to enemies, and flat fillings again came into vogue. I soon saw where the vulnerable point of attack was. Too great haste in filling with gold before the teeth had been properly wedged, together with the failure to recognize the fact that contact of tooth-substance was dangerous, gave the death knell to many fine specimens of art in gold building. The next weak place was that, so many cavities being practically inaccessible, it was difficult to avoid leaving a space unfilled or the gold not driven against the walls perfectly. Again, many feared to cut away enough sound tooth-structure so as to carry the periphery of the fillings far beyond the boundry line where no tooth-structure could possibly approximate. *Arthur's style of separation had made many fear to cut tooth-structure away, even where it was to be replaced with metal.*

The scare led to the other extreme, and too much surface was allowed to remain in contact to again decay because the predisposition was not removed. Too many buccal walls were left that should have been cut away, and the cavity, to have a genuine shape for gold, was not carried to the cervix and under the gum, for fear the dam could not be placed on. To use a separator to fill immediately, when the cervix is still very close to its neighbor, is but to court decay, ten to one, whatever material is used. I am opposed to it! Patients, after spending time and money, finally grew tired and disgusted, and sooner than submit to a repetition of such operations would demand the next best thing. Aside from the patient, the operator has but one life, and he has to look out for health and a "rainy day," or no one will look out for him.—*Cosmos.*

TREATING SENSITIVE DENTINE.

Some very broad claims are made for the use heat alone, it is a reasonable method of treatment; a treatment that in most instances perhaps will be effectual, in all instances, if pursued to a sufficient extent. Frequent application of heated air during excavating will usually make the operation quite bearable by almost every patient. The use of an ether spray alone is of very little value in ordinary cases.

After the excavation has been completed and thorough desiccation, then a solution of cocaine or heated carbolic acid may be used with decidedly good effect. After excavation and desiccation a solution or varnish or varnish of gum mastic or copal may be applied to the walls of the cavity for the purpose of preventing a recurrence of the sensitiveness after the filling has been completed. By this means, in most cases, entire freedom from a return of the sensitiveness is secured.—*Dr. J. Taft.*

Dentists Born, not Made.—Skill in making dental operations is not so much in the material or instruments used as in the ability of the operator to combine mind and hand. A dentist is born just as much as a preacher. Unless he is born with faculties that he can cultivate and which will enable him to become proficient; unless he is born with powers that will develop a fine mechanical skill, he will never be a good dentist. He must have a base to build on, and that he gets at his birth.

The idea that a man can educate himself, if he has not the base to build on! He must first have that. If he has the natural qualities to be a dentist, he will educate himself to make mind and hand work together, and will not have much trouble to become a good operator. A dentist ought always to have his mind on his work, and not in Europe or making up a bill against some delinquent, or jawing his neighbor. I know of a man who told me that while he was filling teeth he perfected a patent "bird trap" that he made \$1,000 on. He asked me what I thought of that, and I told him that if his patients did not dam him, I thought Deity would.—**DR. R. L. COCHRAN.**

—"Yes," said Uncle Rastus, "I'se been takin' brain food fo' to stimulate my mem'ry, an' it's wukin' fust rate."

"I hope it has worked sufficiently for you to remember, Uncle Rastus, that you have owed me seventy-five cents for over a year."

"Yes, sah; dat was one of de fust things I 'membered; and jes' as I was gwine 'roun' fo' ter pay de money I also 'membered dat I wuddent have nuffin' let' ter buy a codfish wif. Dat brain food, Mistah Smif, an a great discovery."

THE MEMBRANES CONNECTED WITH A TOOTH.

DR. F. S. MAXWELL. STEUBENVILLE, O.

Pericement is inflammation of the membrane associating the root of a tooth with its alveolus. The periodental membrane is a thick, fibrous membrane investing the roots of the teeth,—continuous with the periosteum of bone,—thicker than the periosteum of any part of the body, and increases in thickness with age. The periodental membrane is a reflection of the membrane that covers the alveolus, at the same time dipping down to line the pulp cavity, and is continuous with the mucous membrane covering the gum.

The periodental membrane,—the remains of the cemental pulp,—is called the “mother of the cementum,” and the cementum being developed from the periosteum it therefore in after life receives its nourishment from it.

The periodental membrane consists of but one layer, in contradistinction to the peristeum which consists of two, the outer one formed of connective tissue, the inner of fine elastic fibres, which is continuous with the periodental membrane, the outer layer disappearing and re-uniting with the inner after leaving the oral cavity. The fibres of the membrane are arranged to act as a cushion against a strain brought against the tooth, the arrangement being alike over the body of the root, but different at the apex, leaving a space between the apex and alveolus, called by Dr. Black the apical space.

These fibres again come together at the rim of the alveolus forming a thick mass called the dental ligament, and are then continuous with the periosteum. The periodental membrane receives its blood supply from a branch of the artery supplying the pulp, and which passes into the apical space before dividing, as one source, and from another by the anastomosing of these vessels with similar ones supplying the gums. Thus you see the membrane has an arterial supply from two sources, and any injury affecting the supply from one will cause no stoppage with the other, and consequently the periosteum does not suffer. The nerve supply is the same.

The cementum of the root is supplied with nutriment material from the periodental membrane, hence if *some* of this blood and nerve supply is cut off the cementum does not suffer for want of nourishment. One of the most important offices of the periodental membrane is its sense of touch.—*Ohio Journal*.

To Penetrate The Root Canal With The Hot Blast.—

Dr. G. F. Cheney, St. Johnsbury, Vermont, cuts off the nozzle of a common hot air syringe near the bulb, and putting a thread that takes a hypodermic syringe screws this on. He has several sizes and shapes of these points so that he passes them into any kind of a canal.

CONTINUOUS GUM WORK.

DR. W. H. MILLER, CANTON, O.

How to make a continuous gum artificial denture and adapt it to rubber or metal plates successfully, so that it can be produced at a low price, is a problem that has long been before the profession for a solution.

I have adopted and am using a method that meets the requirements, from an artistic and financial standpoint.

From the model, make a die and counter-die of the anterior part of the mouth, as far back as the bicusps. Strike up a piece of platina, which will now fit on the model. Set up continuous gum teeth, back, solder, apply body and enamel in the usual way, and fuse. You now have a complete block of the eight anterior teeth that have been arranged to meet the requirements of the case in hand, which are all the artist has made them. The gum portion exactly conforms to the model, and is all they have been designed to be to fill the special demands that each case calls for. There have been no "joints" to grind, nor "dark joints" to fear, and the block as a whole is strong. The block is now placed on the model in the articulator, the remaining teeth set up, the case waxed up, vulcanized and finished. You now have a denture, beautiful and cheap. It has cost but little more for material, and required but little more labor than the most ordinary denture, though, as a finished product, the result is as much better than a set of sectional blocks as the difference between a fine, artistic painting of a subject by the hand of a master, and the same subject from the hand of a mere mechanical dauber of colors.

By practicing this method you have within yourself the ability to produce the best possible results, not being in the least dependent on the accident of having something in stock "that will do," but with which neither you nor your patient should be satisfied.

Any case can be taken charge of, with the assurance that what should be done can be done, without distrust in the result and dissatisfaction in the patient. There is the comfortable satisfaction of knowing that the best has been done, and of its acknowledgement by the patient. Besides the price can profitably be made so low as to compete with the ordinary "store teeth."

Organized structure is the platform of existence; it is the stage whereon the star actors—nutrition and propagation, motion and sensation—play their individual parts. The play is called "Life;" and accordingly as the actors perform their allotted rôles—evenly, irregularly, or unnaturally—so will the piece be successful, mediocre, or a dead failure.—*Louis Lewis.*

POLISHING DEVICES.

DR. F. A. WILLIAMSON, PORT SCOTT, KAN.

Some simple devices, well tested in my own laboratory in polishing plates, may help others in both economy and convenience:

In using sand-paper, if you have not the split mandrel, fit one of hard wood to the lathe, if practicable; instead of allowing a flapping free end, wind a piece of proper width on the mandrel a couple of folds and cement the end down with, say Spalding's glue, tie and lay aside a few for future use. A little of old rubber dam, folded inside will make the cylinder more pliable. For reaching an angle and for rapped work, take an old cork, turn it to any desired shape on your lathe with a file, glue on a covering of sand-paper and tie firmly in place till dry.

The cone of pumice-stone which Prof. Harper brought to our attention I think better for general use; but it is more satisfactory to me with a simple bushing which I give it. After blocking it out with an old saw, and shaping with hatchet or chisel, I bore with any convenient instrument a perforation a little larger than the spindle to which it is to be fitted, wrap the end of the spindle with tissue paper moistened with Spalding's glue, and screw in place; when dried, place and turn to desired shape with an old file, resting one end of it on lathe-bench.

For applying polishing powder I have found nothing superior to wheels cut from the fragments of the heaviest machinery bands made of rubber and cloth. If the smaller size of these do not reach some spot, punch one out of sole leather and place on the dental engine; while the accessible parts of a plate will be brought to a polish with a two and a half inch diameter wheel of the band material as if by magic.—*Archives*.

Preventing An Abscess.—The apical foramen is the only inlet and outlet of the pulp canal and when perfectly stop the work is done, and the more quickly you stop it the better will be the chances for success.

Always place the dam about the tooth before opening the pulp chamber, and use nothing but carbolic acid crystals with enough alcohol to make them liquid, using smooth broaches to work it into the canal and by these means clean carefully; when cleaned use hot air to dry. The canal is now ready to be filled. This is done by pumping in gutta-percha dissolved in chloroform and with points made of orange wood. Be sure the first point entered goes to the apex. The root canal can by these means be well filled, and if any bugs remain alive after the dose of acid, hot air and chloroform, they may eat the gutta-percha, for this is the only harm they can do.—*Dr. J. D. McCulloch*.

TO RESTORE THE POLISH OF INSTRUMENTS.

Dr. Frank L. James, editor of the *St. Louis Medical and Surgical Journal*, gives in the August number the following useful information regarding the restoration of polish to surgical instruments:

Some weeks ago, the stopper of a bottle of corrosive sublimate, which was carried in a satchel along with a lot of loose instruments, came out, and the chemical was emptied into the bag. The fact was not noticed at the time, and the next day the instruments were found covered with rust and in some instances quite badly eroded. How to get the instruments clean without sending them to an instrument-maker was a question which I determined to settle by experiment. The instruments consisted of dressing forceps, scissors, needle-holder, needles, several bistouries, scalpels, etc., the knives all having tortoise-shell or ivory handles. Without going into the details of the experiments, I will give you the method of procedure which yielded perfectly satisfactory results. A saturated solution of chloride of tin in distilled water was made, and with this a large number of test-tubes were filled to a height sufficient to admit of the immersion of the blades of the knives, the forceps, etc. The instruments were inserted and left over night. The next morning they were found quite clean, and of a mat-silver whiteness. Rinsing in running water, wiping and rubbing with a chamois completed the operation. Chloride of zinc solution gave pretty good, but not nearly so satisfactory results.

DR. W. O. KULP says :—The question often comes to us when we see some of our failures in filling, why is it so? One man studying “bugology” says it is the bugs that do the harm; another says it is the acid that does the harm. If we come right down to it, it is something else. If we leave enamel walls perpendicular, and if we put ever so fine a filling against them, the bugs will not do as much harm, and the acid will not act as mechanical force. Mechanical force may strike that edge and it crumbles, even though there is a good gold filling along side of it. This starting place being made, the bugs may come in, the acid may come in and decomposition may take place. It attacks the dentine and then, of course, the whole mischief is done; but first it is mechanical force that started it. Now the “why” is simply because we left the wall in that shape. We should bevel the wall so as to have our fillings go over the lining, and particularly those walls that any force would be most likely to strike. If the force strikes the tooth in a solid condition no harm would come. I imagine that the great reason why we fail in many of our operations in the mouth is simply because we do not guard these little points around the margin of the wall of the cavity.

Origin of a Tooth and Its Decay.—Dr. Abbott says: With high power, a reticulum full of little nuclei can be seen in every odontoblast, but this is only a provisional step in the formation of dentine. The odontoblasts themselves become dentine, the nucleus splitting up again and again, and the odontoblasts increasing in length. I have studied carious dentine very carefully for many years. After the débris has been taken out, the first layer of carious substance will be found soft and full of micro-organisms, micrococci, and lepthrix mainly. As we go deeper in, we will find that the micro-organisms penetrate only to a certain extent—the line of demarcation is plainly drawn—we will find disorganized, broken-down tissue, perhaps 28 parts of organic substance and 15 parts of living substance, glue-giving basis substance, in an inflamed condition. Organisms do not cause decay, but they come there because it is decayed.

A CASE OF NECROSIS.

Dr. W. J. Sibley says: Through the kindness of R. N. Sheldon, M. D., I am enabled to give the history of, to me, a very interesting case of necrosis.

“A child, when about two months old, was attacked with lactic crusta, which continued for twelve months, when cholera infatum set in, causing the disappearance of the eruption. This lasted for two weeks, followed by infantile marasmus for two weeks; there was a fair assimilation of food, which continued until the child's death. I was called in consultation with Dr. Sheldon on August 26th, and found the child, then about eighteen months old, suffering from what appeared to be an ulcerated left superior molar. On examination we found the maxilla badly necrosed. I extracted the first molar, and found it necessary to remove the second also; the roots of both molars were completely absorbed. After removing the accumulated pus, we found the floor of the antrum missing, and the cavity filled with a thick, greenish matter, which we had no difficulty in removing in a body with a pair of small pliers. On probing, we found the left superior maxillary and malar bones necrosed, and were able to reach the orbital cavity without causing any pain or starting blood. The cheek was also diseased, and seemed to be sloughing away; the stenoduct was gone, and the parotid gland exposed. All of the necrosed bone was very soft, and filled with a thin, yellowish matter.

“The family history was as follows: On the father's side, all were healthy. On the mother's side, one sister had scrofula, and another sister's children were scrofulous. I can trace the case to no other cause than that of hereditary scrofula.”—*West. Dent. Jour.*

Dry Mouth.—At the meeting of the Clinical Society of London, March 17, 1888, Dr. W. B. Haddon read a paper on dry mouth, or suppression of the salivary and buccal secretions. The patient was a woman, 65 years old, who had suffered from no affection which could throw light on her present condition. There was no history of family paralysis, or of the prolonged use of belladonna. Her mouth began to get dry some months previous to observation. The tongue was red, devoid of epithelium, cracked in all directions, like crocodile skin, and absolutely dry. The mouth generally was dry, and the mucous membrane smooth, shiny and pale, with a few patches of injection. There was also deficiency of moisture at the back of the pharynx. The tonsils were natural. The salivary glands, as far as could be made out, were natural in size. Common sensation of the inside of the mouth was unimpaired; but the sense of taste was retarded in consequence of the deficiency of moisture. When the mouth became moist later on, the saliva was found to be slightly acid, and to exert no action on a solution of starch. During this time the mouth had been getting dry, perspiration had notably diminished, and the lachrymal secretion was arrested. The patient received much benefit from the use of jaborandi. A case of similar nature under the care of Mr. Hutchinson was alluded to, and one under the care of Dr. Rowlands, of Liverpool, was communicated by the author of the paper. It was suggested that this condition of dry mouth was due to some disorder of the nervous apparatus.—*London Lancet*. Quoted by *Cosmos*.

Chicago, Nov. 15th, 1888.

Intelligent.—*Friend Welch*:—Enclosed find a specimen of dental literature which would grace a page of the ITEMS. You notice the original method of spelling tooth, and “continor” gum.

Yours Truly,

L. P. Haskill.

Dr. H. P. Haskil, Dear sir I send you a impesion for you to maik me a continos gum plait this thoth is the siz an colerget it don as son os you can

A Cure for using Tobacco.—In August number of the ITEM, you copy from the Scientific American an article on cigaret smoking by boys, and quote the writers remedy for it, “liberal doses of ‘Rod in pickle.’”

A wise and practical mother said she cured her boy of using tobacco by “the laying on of hands.”

How shall I correct a vitiated condition of the fluids of the mouth? I find the saliva very acid. How shall I bring it to a normal condition?

OPERATOR.

FREEMAN'S DOUBLE LOOP CLAMP.

We have a set of these clamps and in our practice have found them invaluable.

This device, when in position, folds the dam over and beneath the gingival border, holds it in place, makes visible, and keeps dry, labial and lingual cavities beneath the gingivae, while impacting the gold.

It has no equal as a helper in this class of operations. It is reversible and applied without forceps. Made of best steel in three sizes, applicable to all incisor, cuspid and bicuspid teeth.

Dr. Freeman, 16 Aberdeen street, Chicago, is the inventor.

Cleaning the Teeth.—A great many will clean the teeth with a brush, giving them a thorough brushing, but they cannot get the particles out from between the teeth with a brush. They should use a tooth pick. If they are going to do without cleaning the teeth after a meal either with a tooth pick or brush, I would rather they would dispense with the brush. The reason I speak of this is because, when they go to their business after a meal, they occupy that time in using a tooth pick. A lady, after having finished a meal, goes to work and occupies her hands, and frequently does not use a tooth pick at all. I find cavities in the ladies' teeth oftener than in the men's. I think we should teach the ladies that it is just as necessary to clean teeth thoroughly with the tooth pick as it is to use the brush. Oftentimes teeth are not thoroughly cleansed because they do not know how, and we dentists ought to tell them how.—DR. J. B. ROGERS.

"Sit" and "Set."—Many of the agricultural journals are sorely troubled to know whether a hen sits or sets. If some editor of dignity would set a hen on the nest, and the little editors would let her sit, it would be well for the world. Now a man, or a woman either, can *set* a hen, though they cannot sit her; neither can they set on her, though the old hen might sit on them by the hour if they would allow. A man cannot set on the wash-bench; but he could set the basin on it, and neither the basin nor the grammarians would object. He could sit on the dog's tail if the dog were willing, or he might set his foot on it. But if he should set on the aforesaid tail, or sit his foot there, the grammarians as well as the dog would howl. And yet, strange as it may seem, a man might set the tail aside and then sit down, and neither be assailed by the dog or the grammarians.—*The Christian World*.

Take care of your character, and your reputation will take care of itself.

The Universal Solvent.—London *Iron* gives an account of what it calls the universal solvent. This fury of the chemical world is the element fluorine. It exists peacefully in company with calcium in fluorspar, and also in a few other compounds; but when isolated, as it recently has been by Henri Moissan, it is a rabid gas that nothing can resist. It combines with all metals explosively. When they are already combined with some other non-metallic elements it tears them from it and takes them to itself. In uniting with sodium, potassium, calcium, magnesium, and aluminum, the metals become heated even to redness by the fervor of its embrace. Iron filings slightly warmed burst into brilliant scintillations when exposed to it. Manganese does the same. Even the noble metals, which at melting heat proudly resist the fascinations of oxygen, succumb to this chemical siren. At a moderate temperature glass is devoured at once, and water ceases to be water by contact with this gas.

Why Am I Not Making More Improvement and better use of my time? Is it because I am becoming lazy or careless? Am I trying to do too much, and by so doing working too hastily? Am I allowing myself no time for reflection, or have I no ambition to excel or surpass myself? Why is my brother so far in advance of me? If he is, then the trouble is with myself, for I most decidedly take issue with the statement that dentists are born, not made. We will grant that occasionally the genius of a poet, Pegasus-like, with full-fledged wings, may suddenly arise and startle the world; but those who have attained the highest eminence are those whose minds are a perfect storehouse of knowledge, and rich, pure thought, which was obtained only after long years of patient study and discipline. (I most strenuously objected to having my own fond ambitions so ruthlessly thrown to the ground, and pass my life in echoing that sad lament, Alas! "Perish all my hopes and fond ambitions.")

Thinking then as I do, it is necessary for *me* to find the reason why. In almost every case it will be that I have not been *thorough*. I have not given every *single step* careful thought, and have not, and am not, making the most of my past experience, and what in this age of advance is within the reach of all, the recorded experience of others. Certainly one answer to the question then is a lack of thoroughness. Perfection should be aimed at even though some of us do so widely miss the mark.—*Dr. C. I. Peterson.*

The best advertisement is good work. This brings you living advertisers that work without pay, and yet bring you the best returns for your investment.

For Polishing Teeth.—A pleasant and satisfactory preparation for polishing the teeth is flour and silvex, glycerine, and oil of wintergreen. The glycerine forms a paste which remains on the tooth better, and does not fly off like dry powder. The wintergreen being only to add a little flavor. W. G. J.

In Using Borax.—For soldering, it is much better to first boil out the water of crystalization by heating, and then pulverizing. In this condition, when it is heated on the metal to be soldered, it will not bubble and cause the pieces of solder to move about.

Leisure hours with the dentist are the cause of his success or his failure. If he prizes them for the advantages they give him for study and general improvement, they become stock in trade; but, if they are idly spent, or made the occasions of dissipation, they become his ruin.

A tender-hearted and compassionate disposition, which inclines men to pity and feel the misfortunes of others, and which is ever for its own sake incapable of involving any man in ruin and misery, is of all tempers of mind the most amiable; and, though it seldom receives honor, is worthy of the highest.—*Power and Transmission.*

All education begins in work. What we think, what we know, or what we believe, is, in the end, of little consequence. The only thing of consequence is what we do—and for man, woman or child, the first point of education is to make them do their best.—*Ruskin.*

To Remove Water from Alcohol.—If gelatine be suspended in ordinary alcohol it will absorb the water; but as it is insoluble in alcohol that substance will remain behind, and thus nearly absolute alcohol may be obtained without distillation.—*O. St. Jour.*

Advertisement Extraordinary.—A. M. MUSSER; PAINLESS DENTIST; makes a specialty of preserving the natural teeth. Defects of the palatine organs restored. *Devitalized air administered.*

Teach the young that a merry heart is not incompatible with a profession of the Christian religion, that its very spirit is praise, and more will seek its delights.

A man's true prosperity often begins when he is said to be ruined; and his ruin, when he is said to be prospering.

Cocaine is said to be worse than alcohol and opium put together. It completely destroys a man's will power.

Good temper is like a sunny day: it sheds brightness on every thing.

For Our Patients.

NICOTINE.

I am the Spirit Nicotine ;
 'Tis I who glide the lips between ;
 Through the lips I trace the brain ;
 There I am a mighty pain,
 I pursue my fatal track,
 Down the arched and marrowy back ;
 And the vertebræ grow slack,
 Naught can hinder, naught can swerve,
 I pervade each secret nerve ;
 Pick my meal with knife and dart,
 From the palpitating heart ;
 Quaff the leaping crimson flood,
 Of the rich and generous blood,
 I the yellow bile diffuse,
 Paint the face in ghastly hues.
 Muscle and sinew
 May not continue
 To hold their wonted haughty pride,
 The while I through the system glide.
 Slowly I my purpose wreak,
 Slowly fades the blooming cheek.
 Gloomy fancies I suggest,
 Fill with fears the hardy breast.
 The limbs then fail,
 The lamp burns dim,
 Life hears death's hail,
 And answers him.
 Heart and liver, lungs and brain,
 All their powers lose amain,
 And yield to me ;
 And I ! and I !
 Laugh to see
 My victim die.

Jewish Messenger.

The Power of the Imagination.—We learn from the New Orleans *Picayune* that Dr. Durand, wishing to test the practical effect of mind disease, gave a hundred patients a dose of sweetened water. Fifteen minutes after, entering apparently in great excitement, he announced that he had by mistake given a powerful emetic, and preparations must be made accordingly. Eighty out of the hundred patients became thoroughly ill, and exhibited the usual result of an emetic. Twenty were unaffected. The curious part of it is that, with very few exceptions, the eighty "emeticized" subjects were men, while the strong-minded few who were not to be caught with chaff were women.

Editorial.

THE BALTIMORE COLLEGE OF DENTAL SURGERY.

We present this month the portrait of the honored Dean of the oldest Dental College in the world—the Baltimore College of Dental Surgery. One year more, and this thriving institution will have accomplished its half century of existence. Its present success under PROF. R. B. WINDER is probably quite equal to any period of its noted career, a description of which we present on another page, from the pen of an Englishman. All our Dental Colleges, and Dental Departments of Universities are now doing well; but those who graduate from the Baltimore College under its present management have the double honor of successful students and students from a specially successful college.

The class of its last session was the largest it ever had, and the number of its graduates was the largest—106. This college has supplied so many of our prominent dentists that it will be interesting to watch the rising of the present class of graduates. We believe they will be favorably heard from; and, as far as we can, we shall watch their career. They are as follows:

D. S. Arnold,	Alabama.	A. Mills,	Canada.
R. Blackwell,	Virginia.	R. H. Moloney,	Canada.
R. H. Blair,	Texas.	W. P. Moore,	Virginia.
F. V. Brooking,	Illinois.	C. G. Myers,	Indiana.
C. C. Buck,	Maryland.	H. Muller,	Germany.
W. E. Bunn,	Georgia.	J. M. Parker,	N'th Carolina.
W. D. Cowan,	Canada.	G. W. Patten,	Minnesotal.
J. H. Crossland,	Alabama.	W. H. Phillips,	New York.
J. C. Dana,	New York.	J. Rust,	Virginia.
M. L. Dawson,	Virginia.	W. H. Savage,	N'th Carolina.
W. W. Dunbracco,	Maryland.	J. W. Semones,	Virginia.
J. W. Fisher,	Virginia.	A. W. Seidler,	Maryland.
J. D. Ford, Jr.,	Maryland.	J. W. Smith,	Virginia.
S. W. Gregory,	N'th Carolina.	M. A. Sparks,	Alabama.
W. S. Gregory,	Virginia.	G. J. Sproul,	Canada.
C. F. Harding,	New York.	R. H. Stephenson,	Virginia.
G. E. Hardy,	Virginia.	S. Szuwalski,	Maryland.
C. W. F. Holbrook,	New Jersey.	H. W. Talley,	Virginia.
W. F. Holt,	Georgia.	W. J. Thurmond,	Georgia.
T. H. Kellum,	Virginia.	J. B. Walton,	District of Col.
A. E. Kellogg,	Pennsylvania.	J. E. Ward,	Pennsylvania.
E. C. Kirby,	Maryland.	F. A. Warnes,	Connecticut.
W. R. Knight, Jr.,	New York.	R. E. Wilkinson,	New York.
L. P. Leonard,	Dakota.	W. D. Williams,	Virginia.
A. C. Liverman,	N'th Carolina.	L. W. Wilson,	Virginia.
B. F. Mardis,	Pennsylvania.	J. T. Wright, Jr.,	Virginia.
C. H. McLean,	Illinois.		

THE OLD AND THE NEW IN EDUCATION.

The world is waking to the grand truth that education is more than *knowing*, more than something *received*, more than the storing away of mere facts, formulas and theories. Our educators are beginning to realize two important truths:

1st That there is a great difference between knowledge and wisdom; that the old process of merely enriching the memory is a small part of education. This is cramming; and though such a process will be of service in after life, as a cyclopedia is of service, this knowledge, to be of the greatest use, must be digested and assimilated into wisdom. To enable our scholars to do this, they must *understand* what they are taught; they must be reasoned with and helped to reason for themselves, so that what is presented shall become emphatically their own by vital appropriation. They must not be treated as vessels to be filled, nor even as blank paper to be written on as we may elect. They are rather as rich soil which they and we as teachers are conjointly to cultivate. This means much more than burying the seed. The soil must be intelligently prepared; and as we are to be continuously enriching the soil, and sowing the seed, and superintending the growing, and reaping the fruits, the work is complicated, though interesting and profitable. It will not do to let weeds grow any where; and weeds *will* grow where plants are not cultivated. The lesson taught is that all the faculties must be strengthened, developed and stored, and all the powers aroused, directed and employed. The whole man must be brought into activity, maturity and usefulness. This will give us well-rounded, symmetrical, evenly developed men and women.

It will not do to give isolated facts and abstract theories to the memory, and call this education. Unless these can be so surcharged with life as to come into our every day calling and help us, they are of inferior importance. Facts must be made philosophy, theories science, and knowledge practice.

2d. But more than this is imperative; for all this makes only a wise man, and we have all seen wise men walking on one leg. That one leg is very good, but the other is dwarfed; so the great weak man goes hobbling along, while he who has two of equal service, though each is weaker than the wise man's one, outstrips his superior in all the walks of life.

And here appears conspicuously the new school of education. It is the prominence given to *doing* in conjunction with *knowing*. From the old system come our youth with precocious, unbalanced brain, supported on a frame weak and sickly; they are parlor plants, giving leaves and a few flowers in return for very much care, but no fruit, —they are delicate, tender, hypersensitive. Such people are of little

service. They are impracticable, unreliable, visionary, ignorantly wise and wisely ignorant. As they descend from their airy flights of theories, and extravagant views and expectations, to the level of common things and common people, to do common duties, they are out of their sphere, and there is no place found for them. They do not know how to work, or even how to live. They make good professors, if their predecessors may be called good; they are good talkers, if parrots are good talkers; we may make place for them in the counting room, the editorial sanctum, and in the professions, if only brains of abstract quality are required. But these places are already overcrowded with just such mendicants, and in any place they have to be watched closely. As professors, they are too theoretical and impracticable; as talkers, they are too highflown and diffuse; as business men, they are too excentric and unreliable. Put them where you will, they are out of place, and they feel out of place, and generally eke out but a precarious living. All this, because their free, normal, manly nature has been squeezed and crushed out of them by the forcing process through the college hopper. They do not come to us in their native wholeness and manly dignity, with their individual force of character and inspiration untrammelled, untwisted and unmarked; but as the *product* of some school.

The idea of the new school of education is to respect highly the individuality: preserving all the native instincts, peculiar traits and bent, and the normal tastes and preferences, that make up distinctive character. It gives emphasis to all the forces nature has implanted to adapt the individual to his life work; it encourages all the delicate sensibilities calculated to make that work pleasant and honorable; and it gives direction to the laudable ambition of mixing brains with muscle to make work skilful and profitable. Thus it seeks to strengthen, build up and perfect the whole man. Ah, this educating all the faculties as well as the memory, the hand as well as the head, the muscles and the nerves, and the whole body to *do* as well as the mind to *know*, gives breadth and depth, fulness and brawn, bravery and force, philanthropy, spirituality, inspiration and irresistible aggressiveness.

Even in business, it gives all the elements of success: exactness, adaptation and skill. Profit is sure to follow, and usefulness from the profit, and contentment and happiness from usefulness. It gives the world that variety in talent, skill and character that is sure to forward all its interests, with an abundance of room for every man.

With such an education, our boys and girls would not be excluded by ignorant, selfish foreigners from our factories and machine shops, and these places would be made attractive and honorable for the most intelligent and skilful. Our farms would be the homes of our best

citizens, and work of every kind would be remunerative and pleasant. Menial service, that only requires the muscles of brute force, would be relegated to those who would not prepare for skilled labor.

We are pleased, therefore, to see, all over the land, the encouragement and the facilities progressive educators are giving their pupils, to bring into practical use what they are taught; and that this teaching is going so far as to include the theory and practice of various skilled employments. The Pratt Institute for Industrial Education in Brooklyn is a notable example, and there are many other such institutions in different parts of the country. Even many of our common graded schools are taking up this advanced idea. May it be incorporated into every school of the country.

NEW YEAR'S RESOLVES,

The idea that these are of little importance is an error. Some of the best and firmest steps forward we make, is at the beginning of the New Year. Of course, we may make them so flippantly and thoughtlessly, they may have little effect on our life. But if we seriously review our evil propensities, and thoughtfully abandon them; if we impartially investigate the causes of our failures, and determine to avoid them; if we honestly face our weaknesses, and vow to strengthen ourselves against them, we shall commence the New Year wiser and better men. There are also new aspirations to cherish, new avenues of improvement to enter, new work and responsibilities to assume; and all this means struggles to reach a higher plain, that we may live a nobler and more useful life. For if we content ourselves with only abandoning the bad in our nature, we shall fail of that aggressiveness essential to any worthy end.

Look to your business, and see if it cannot be improved; look to your home, and see if it cannot be made happier; look to your social status, and see if it cannot be elevated. Examine your habits, and see if there are not some that would be better left off; examine your time, and see if much of it cannot be more wisely spent; examine your talents, and see if they cannot be aroused to greater vigor.

But, however we may improve ourselves, the man who lives only for self, misses everything valuable to self: he who seeks only sensuous pleasures is a stranger to the most ecstatic delights; he who sacrifices nothing for others good, fails to secure the key which unlocks heaven.

Let this New Year, then, be the epoch of a New Life: let old things that are unworthy to live perish; let those spontaneous emotions for a higher life be thrust forth into immediate action; and let the future be what your best convictions and aspirations prompt you to be.

THE LUXURY OF HEALTH.

Our health is generally in our own keeping. It is, like nearly everything else there is of us, what we make it. Unavoidable accidents may interfere, some outward influences may be uncontrollable, an innate weakness may make perfect health impossible; but usually our surroundings and position, and our state of mind and body, are what we make them: all these are largely made by our voluntary and controllable condition and habits.

You have seen house plants? What puny, sickly, dwarfish things they generally are? What a contrast between these and the vigorous, smiling, fragrant flowers of the well kept garden? By a little neglect or exposure, how easily these indoor things wilt. How much care they require, and yet they are always complaining.

Children are but little removed from plants; that is, they are much what we make them, and what they make themselves by their surroundings. By sitting them in the corner and folding their hands, to be waited on and fed and indulged, of course they are spoiled; but by sending them out into the sunshine and storm, into the heat and the cold, they become toughened by the vigor of exposure and activity.

And we men and women are but little removed from children. We need not *try* to be weak and puny; we have only to shut ourselves up from the free air and sunlight. We shall soon need as much attention as the house plant and the delicate children. Or we can rush out into the raging storm and the bracing cold, and drink in health and vigor. For we children, of all growth of, a good fight with nature is better than medicine. Skipping and hopping and jumping and romping, laughing and screaming and wandering and sporting, are better antidotes to weak stomachs, weak muscles and weak brains than a 7 x 9 nursery, with its sickly light and atmosphere, the dullness of monotony, the severity of "propriety," and the softness of indulgence. Better by far for mother and father, as well as children, to be turned out of house and home betimes, into the luxury of the wild woods, than to be forever shut up in the prison of voluntary confinement, though there be all the indulgences of riches and "good society." We all—we older children, as well as the little ones—need the brawn that comes only from the excitement of physical prowess, from the hilarity of sport, and especially from down-right hard work. Away with this softness and delicacy and effeminacy that calls for kid gloves and sweetmeats and cordials and doctor's pills and bills, and which result in weakness and degeneracy of muscle, mind and purpose.

Let the calling and circumstances be what they may, we need joyous health, harmonious development, and symmetrical proportion of

body, brain and spirits. Without these what is wealth or refinement, or even learning and opportunity?

Ah, the luxury of health of body and mind is inexpressible, indescribable and unpurchasable by money. It gives vim and inspiration and power; it brings heaven and angels and glory; it makes us positive, aggressive and successful.

Electricity in Extracting —Thirty years ago, when the battery was first brought into use as an anesthetic in extracting teeth, an incident occurred that shows the power of the imagination, if not of electricity.

A young lady, from twenty miles away, entered our office to have a tooth extracted under electricity. Our battery was out of order, and we so informed her.

"I'll wait, then, till you put it in order," she said; "for my cousin says you extracted a tooth for her with the battery, and it did not hurt."

No persuasion could change her mind, and no skill of mine could wake up the battery. After much delay, I brought it and placed it beside my chair, saying I would connect it with my forceps, and I hoped to make a painless operation.

She took the chair satisfied with the very sight of the mysterious machine. In a moment she exclaimed with delight—

"What a wonderful machine! It pulled it without a pang. Ah, doctor, I will send all to you who want teeth pulled. Why, it pulled it out just as a horseshoe magnet pulls up a nail."

She really gave me no time to tell her that the battery was not running.

BE PROGRESSIVE.

We are not here merely to transmit to our successors the world as we receive it. We are to do more than to think and teach and act as our fathers did. Even if they nobly filled their generation, their work is not our work; to be alike faithful we must do our work, and this must be some improvement over all that has gone before us. If we only imitate them we are hardly above the dove that builds this year just such a nest as was built by the dove that went out of the ark when the waters had abated. We stand between the great past and the greater future, to apply to greater usefulness all that has been transmitted to us, and to pass to the men that are to come new discoveries that shall in turn enrich them.

In our profession we are idlers if we are not applying and improving the innumerable discoveries, inventions and appliances handed to us by our predecessors and cotemporaries. All these are not yet per-

fect, but wonderfully suggestive of great possibilities; many loose thoughts and facts and truths need to be woven into concise theories—and many beautiful theories, reduced to useful practice. We must combine these into grand systems of condensed efficiency and quickened vitality. And as we are thus enriching ourselves with what we receive, we are in duty bound so to add to our store, and so to transmit to others, as that the profession shall be the better for our presence.

Be progressive in every thought you elaborate, in every fact you touch, in every theory you apply. Every where, in every thing, for every purpose, leave the impress of your genius, the value of your thought, the richness of your skill. Be a light to surrounding darkness, a warmth to its chilliness, and a medicine to its suffering.

Thus we not only become progressive ourselves, but are the means of the progress of the world.

The New Pinless Teeth of Dr. D. Genesee, Baltimore, should be better known. Send him 50 cents for specimens.

The Dental Department of the University of California is in a flourishing condition. Though it was but recently established, it had in its last course 29 matriculates and 8 graduates.

We understand H. D. Justi, of Philadelphia, has bought the *Dental Review* heretofore published in Chicago. Dr. A. W. Harland is still to be the editor.

“THE RECORD” is published by the students of the New York Dental College, monthly, from October to March. Address: Hyatt, 245 East 23d Street, New York. Its first number is a creditable production.

Extracting or Killing Teeth.—Dr. J. S. March, Chicago, is much averse to extracting or killing teeth, either in college or private practice. He extracts none he cannot remove by an excavator. He promises us his mode of saving diseased teeth *that saves them*.

DR. J. W. GREENE, Chillicothe, Mo., sends us a nice book of 132 pages on *Dental Information for the People*, that is well worthy its object. The more books published of this sort, the better. *Educate the people* should be the watch-word of every dentist.

The Chicago Dental Society is to have a grand three days meeting at the Grand Pacific Hotel, commencing February. And when the Chicago dentists attempt any thing of this kind, they do it on a magnificent scale. New York *has* taken the lead in such meetings, Chicago *will*; or at least this is evidently her purpose, and that *must* be a mighty power that frustrates her purpose.

Miscellaneous.

About the Ear.—*Health and Home* advises: Never be alarmed if a living insect enters the ear. Pouring warm water into the canal will drown it, when it will generally come to the surface, and can be easily removed by the fingers. A few puffs of smoke blown into the ear will stupefy the insect. Never meddle with the ear if a foreign body, such as a bead, button or seed enters it; leave it absolutely, but have a physician attend to it. More damage has been done by injudicious attempts at the extraction of a foreign body than could ever come from its presence in the ear.

Skilled Workmen.—The rapid advance of labor-saving inventions in all trades has had the effect of reducing the number of skilled workmen mainly because it has placed the apprentice system under the ban of prejudice, and well nigh into disuse. The apprenticeship system, which was general fifty years ago, has almost ceased, or been indifferently carried out. Boys agree to serve three or four years to learn a certain trade, and by the time they have obtained a smattering knowledge of it, disregard their engagements, leave and go elsewhere, and then assume that they are skilled workmen, which of course they are not. Again, master mechanics as well as their men, dislike the apprenticeship system; the master mechanics, because boys do not begin to pay for a year or two, and the men because it increases their number, and has a tendency to lower the rates of wages. An intelligent machinist in California at present, writes to his father, that he never has any difficulty in obtaining employment, because he flatters himself that he can turn out more work in a day than four ordinary hands, and had frequently done so, when work was pressing, and what was more, what he did was well done. Pretenders, who know but little of the trade, frequently spoil work which not only entails heavy expense, but causes delay.—*Power and Transmission.*

Pyrofusin.—This newly discovered substance, is contained in nearly all pit and pituminous coals, and is said by professor Erlangen to be one of the most powerful antiseptics now known. In this fact lies its intenseness and rapid tanning property, making it useful in the production of leather. It is such a preventive of fermentation, that on contact with skins and muscular tissues which undergo decomposition, it combines with them with such an intensity, that even after they have laid for a long time in water neither decomposition nor extraction of the pyrofusin results. In a dry condition pyrofusin is a fine, non-triturable substance, without taste or smell, insoluble in water, not poisonous, and in appearance like catechu. In caustic ammonium, potash or soda solutions, pyrofusin is very soluble and forms a deep, dark brown, homogeneous liquid. The intense action of this peculiar substance that it will thoroughly tan leather in the fourteenth of the time alum requires, and the twenty-eighth of the time of tan bark.—*Cincinnati Artisan.*

Training Schools.—Ex-President Hayes delivered a brief address to the pupils of the Normal Training School in Cincinnati

recently, in which he said; "I am glad to see the growing appreciation of the value of schools of industrial training in America. As my sons became old enough to attend school, I tried to give them the benefits of a technical training. My oldest son attended the State Agricultural College in Michigan, though he always maintained that he could not see the technical education to be derived from getting down on his knees to weed an onion bed. My youngest is now attending the Mutual Training School in Toledo, which is an institution similar to this, where the manual work is with tools and processes, instead of onion beds. From investigation I find that the manual work in the schools of this kind is a positive advantage to the students. From the records of any similar school you will find that the five students who are the best in the shops and drawing room will rank highest in their algebra, latin, and other studies. The great benefit of a school of this kind is shown in the case with which its graduates adapt themselves to the various vocations of life. They come forth ready to earn their own living, to make their own way in the world, and they come with a knowledge of the true value and dignity of honest labor. When young and self-reliant they will start on the right road to success in life."—*Cincinnati Artisan*.

Porosity.—Porosity differs in degree among solids, and penetrability differs among liquids; as for instance, coal oil is very penetrating. Sometimes coal oil appears to have gone through the pores of a receptacle, when it has only followed its surface by capillary attraction.

Porosity is shown to exist in the stones taken from the greatest depths of the ocean, as they are penetrated to their very centres by the water.

"Sir John Herschel asks why the atoms of a solid may not be imagined to be as evenly distributed through the space it occupies, as the stars that compose the nebulae; and compares a ray of light penetrating glass to a bird threading the mazes of a forest."

One practical illustration of porosity is seen in the filter by which we take out from water intended for domestic purposes, the various matters, organic and inorganic, with which it is contaminated. The action of a good filter is not purely mechanical. It is not merely a strainer. Such a material as charcoal has the power of condensing in its pores gases to the extent of very many times its own volume; and within its tiny cells there is an oxidation of putrescent and putrid matters, rendering them harmless even if passed over and taken into the system. One thing must be remembered in connection with filters; they always require to be cleaned out at specified times; the frequency depending on the foulness of the water, nature of the filter, and the amount of water which has been passed through.

The filter which never requires neither cleansing nor rinsing is of no use as a filter. In some filters, the substances employed are sand or something of that kind which may be stirred up by mechanical means or by a current of water, and the filth racked off so that whatever has been taken from one lot of water is removed by another. In this the material is good to use over and over again. In others, charcoal or similar substance is used, and condenses and holds within its pores the foul

matter; in which case the filtering material must be discarded.—*Cincinnati Artisan*.

Fortunes in Patents.—The Commissioner of Patents estimates that “from six to seven-eighths of the entire manufacturing capital of the United States, or six hundred millions of dollars, is directly or indirectly based upon patents.” A calculation of the same kind in England, according to our English contemporary, the London *Inventor*, reveals a still more surprising result, the capital invested been enormous. It has been computed that Siemens' inventions have produced more than five millions sterling.

“There is,” says an eminent authority, “scarcely an article of human convenience or necessity in the market to day that has not been the subject of a patent in whole or in part. The sale of every such article yields its inventor a profit. If we purchase a box of paper collars, a portion of the price goes to the inventor; if we buy a sewing machine, the chances are that we pay a royalty to as many as a dozen or fifteen inventors at once.”

Lord Brougham often said that he would gladly have exchanged his honors and emoluments for the profits and renown of the inventor of the perambulator or sewing machine.

The writer here states the profits annually divided by our several sewing machine manufacturers, which are phenomenal in amount, adding that “more money has been, and always can be, made out of patented inventions than by any other investment or occupation.” The telephone, the planing machine, and the rubber patents realized many millions, while the simple idea of healing the blast in iron smelting increased the wealth of the country by hundreds of millions. The patent for making the lower end of the candles taper instead of parallel, so as to more easily fit the socket, made the present enormous business of a well known firm of London chandlers. The drive well was an idea of Colonel Green, whose troops, during the war, were in want of water. He conceived the notion of driving a two inch tube into the ground until water was reached, and then attaching a pump. This simple contrivance was patented, and the tens of thousands of farmers who have adopted it paid him a royalty until the recent decision of the Supreme Court, which was adverse to sustaining the patent. A large fortune was realized by the inventor who patented the idea of making umbrellas out of alpaca instead of gingham, and the patentee of the improved “paragon frame” (Samuel Fox) lately left by will £170,000 out of the profits of his invention. The weaving, dyeing, lace and ribbon making trades originated and depend for their existence upon ingenious machinery, the result of an infinity of inventive efforts. Carpet beating, from being an untold nuisance, has become a lucrative trade through the same inventive genius and mechanical contrivance. Even natural curiosity has been turned to account in the number of automatic boxes for the sale of goods of all kinds, and fabulous dividends have been paid by the public companies owning the patents. In fact, any one can be a successful inventor. In proof of this, the most profitable inventions are the improvements in simple devices, things of every day use that everybody wants, and which are in the power of everybody to invent. A lady derived a large income for inventing a moving belt for drying eggs, albumen, etc.